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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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April 16, 1965

Miller Electric Manufacturing Company
P. O. Box 1087
Appleton, Wisconsin 54910

Attention: Mr. L. R. Dwyer
General Sales

Gentlemen:

Further reference is made to your telegram of February 26, 1965, as supplemented by your letter of March 3, 1965, protesting against the specifications contained in IFB 600-670-65, issued by the U. S. Navy Purchasing Office.

The subject invitation, as amended on March 2, 1965, solicited bids, to be opened April 1, 1965, for furnishing 48 welding machines, 400 AMP, rectifier type, requisitioned by the U. S. Navy Marine Engineering Laboratory, Annapolis, Maryland, for use at the Portsmouth Naval Shipyard. Section 3, Requirements, on page 2 of the invitation provides that the welding machines shall conform to Military Specification MIL-W-22913 (Ships) of June 1, 1961, with the exceptions set forth in paragraphs "a" through "p" of the section. Paragraphs "c" and "d" delete references to selenium rectifiers in the specifications, thus making it mandatory that the machines be equipped with silicon rectifiers.

In your letter of March 3, 1965, you contend that the above action on the part of the procuring activity constitutes a flagrant disregard for the Military specification in question, that it will not make for good competitive bidding, and that it is not in the best interest of the Government.

It appears from the report furnished us by the Department of the Navy in this matter that by letter of December 28, 1964, to the Contracting Officer, U. S. Navy Purchasing Office, you made an identical protest to that here involved with respect to IFB 600-420-65, issued by HPO, and that by letter of February 12, 1965, the contracting officer (the same individual as the one here involved) advised you as follows:

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"An investigation into the matter discloses that the specifications in the invitation call for silicon diode rectifier type welders due to unfavorable experience with selenium rectifier type welders in naval shipyards:

a. Selenium rectifiers are subject to aging, while silicon diodes are comparatively free from aging. As a selenium rectifier ages, it becomes less efficient and eventually replaced.

b. When a silicon diode fails, it can be replaced in the field at a cost of approximately \$30 - \$50. The cost of replacing a selenium stack is approximately \$250 to \$400.

c. Down time cause by failure of the selenium rectifier is from one to several days. The equipment must be returned to a maintenance shop for replacement of the selenium stack.

d. Over a five-year period six naval shipyards reported that 130 selenium rectifiers required replacement at an average cost of \$337.00. The yards concerned have an inventory of approximately 640 selenium rectified welders.

e. An unusually dusty condition exists in naval ship-building and ship repair locales. With selenium rectifier welders, an additional maintenance requirement is imposed in that the selenium rectifier stacks must be vacuum cleaned periodically. This operation is required to protect the heat dissipating capability of the cooling fins in the selenium stack. One naval shipyard estimates the cost of cleaning, over a five year period to be \$1,200.00 per machine.

f. The requirement to open access panels to the welder for purposes of vacuum cleaning introduces a personnel safety hazard, since the thermal-overload-cycling protective devices incorporated allow the internal wiring of the welder to be electrically 'hot' after the other components have been removed

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from the line. Because of this problem, one shipyard installed additional thermal and short circuit protection at an approximate cost of \$100 per machine on eight new Miller Electric Company units.

"Specifying silicon diodes is not meant to be restrictive or proprietary to any manufacturer. It is understood that most suppliers will furnish either selenium or silicon rectifiers, at the option of the customer. In view of the maintenance and operational difficulties experienced in naval shipyards, a minimum requirement exists that equipments procured for naval industrial activities be furnished with silicon diodes."

Your letter of December 28, 1964, had previously been referred to the U. S. Navy Marine Engineering Laboratory, Annapolis, Maryland, and was the subject of a memorandum of February 4, 1965, from the Commanding Officer and Director of the Laboratory to the Officer in Charge, U. S. Navy Purchasing Office, which states that the requisition covered by IFB 600-420-65 was prepared in consonance with "NAVSHIPS 3060 and supporting DD-1419 for 'Project P36-65, Portsmouth NAVSHIPYD, Welding Machines, 300 amp AC/DC Transformer - Silicon-Rectifier Type'." The memorandum states that silicon rectifiers were required in accordance with the approved project and in accordance with the policy expressed in a letter dated June 7, 1963, from the Deputy Chief of the Bureau of Ships to you, in response to your letter of May 24, 1963, requesting information concerning specification requirements which precluded the use of selenium rectifiers in the welding machines then being procured for the Norfolk Naval Shipyard under IFB 600-1169-63. The memorandum goes on to state that, by the Laboratory's letter "TP/FSC 3431 (281A) HFO Ser 32," dated January 6, 1965, and in subsequent reviews by it of proposed Military specifications for similar equipment, the Laboratory had advised that the specifications be modified "to allow paragraph 6.2, Ordering Data, to read: 'Rectifier may be specified as either selenium or silicon (See 3.5.3.)'." It further states that "this policy is based on unfavorable experience encountered with selenium rectifiers in naval shipyards." The memorandum sets forth the same details relating to the "unfavorable experience" as those set forth in the contracting officer's letter of February 12, 1965, supra.

It appears that by letter of February 11, 1965, you filed a protest with the Navy Purchasing Office, in regard to IFB 600-670-65 similar to the one filed with our Office, and that the Navy Purchasing

Office arranged for a conference to be held at the Marine Engineering Laboratory (MEL) on or about February 25, 1965, between Messrs. J. R. Dwyer and F. S. Crist, of Miller Electric, a representative (Mr. S. Tilton) of the Bureau of Ships and two representatives (Messrs L. F. McCarter and E. F. McCarthy) of MEL, for the purpose of discussing your objection to the requirement expressed in Bureau of Ships and Navy Purchasing Office procurement specifications that rectification be by silicon diodes rather than selenium rectifiers. It is stated in the official record of the meeting (which shows that it was prepared by Mr. E. F. McCarthy) in material part as follows:

"1. Our position was explained to Miller representatives as being based on experience in our shipyards which shows down-time for selenium to be greater than down-time for silicon. These statistics further show that maintenance per down-time incident is in turn greater for selenium than silicon. Records further show that total inventory replacement value divided by annual maintenance cost for selenium rectified welders discloses that the inventory replacement cycle for such welders is $4\frac{1}{2}$ years. A similar calculation in relation to silicon rectified welders indicates that the inventory replacement cycle based on an assumed 100% figure, which is considerably greater than our experience to date, is $6\text{-}3\frac{3}{4}$ years. Miller was reassured that our survey indicates no adverse ranking for selenium in relation to welding performance. * * *

"2. Miller expressed a fear that our action would reduce competition. Discussion revealed that at the present time there are eight suppliers who regularly supply silicon diode welders. Discussion further disclosed that Miller representatives readily agree that conventional selenium rectifiers not produced by Miller are subject to aging and failure, whereas the Gold Star Miller selenium rectifier does not age and their failure rate, even in our activities, has been very low. Therefore, although Miller and two other companies bid on selenium rectified welders, in effect, the addition to competitive base is one additional source, that is, Miller. In addition, Miller stated that two other suppliers furnish either silicon or selenium rectified welders.

"3. At Miller Company's request, it was explained that our procurement policy is based on a justification developed at the using activity, which during recent experience has been overwhelmingly specific in requesting silicon diode welders, subsequently approved and funded at BUSHIPS Level. Further, in accordance with BUSHIPS letter to Miller Electrical Manufacturing Company of 7 June 1963, it has been our policy to specify silicon diode welders for naval industrial use based on the maintainability and improved down-time characteristics. It was further explained that, because of these advantages, we regard it as an essential right that we have the option to procure either silicon or selenium rectified welders. To this end, we have initiated action to correct the applicable Military specifications to allow paragraph 6.2 of those specs, ordering data, to read: 'Rectifier may be specified as either silicon or selenium. (See 3.5.3).'

"4. Miller was also informed that, were they to provide technical data which demonstrates their claim regarding the reliability of the Gold Star selenium rectifier, as well as other claims they made regarding improved maintainability characteristics in their design, that this data would be considered in terms of procurements where a receiving activity has specified a desire for selenium type rectifiers. This statement was cautioned with an explanation that adverse experience with selenium to date would require much co-ordination with other affected personnel in the Bureau organization to develop a favorable attitude towards selenium.

"5. Miller was also asked to consider language which is necessary to our specifications which would insure that, were we to procure selenium rectified welders, we would procure equipments having the characteristics claimed by Miller for their Gold Star rectifiers, since any procurements which might lead to having old style selenium rectifiers in our system would be a step backwards."

In the contracting officer's "Statement of Facts" concerning the subject matter of your protest, which was furnished us as an integral part of the Department of the Navy's report, it is stated:

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"9. The Bureau of Ships intent in preparing Military Specification MIL-N-22918 was to enable the requiring activity to specify silicon rectifiers at its option and especially in those cases where the need for silicon rectifiers is critical and selenium rectifiers would not be suitable for the intended service.

"10. As evidenced by reference (b) to enclosure (3), steps are being taken by the cognizant technical codes in the Bureau of Ships and by MIL to revise the Military Specifications on arc welding machines. A considerable length of time will be required for coordination and revision by the Defense Industrial Plant Equipment Center, now the preparing activity for coordinated Military Specifications on welding machines.

"11. The welding machines being procured under IFB 600-670-65 are required to replace welding machines procured in April 1962 which were not suitable for the intended use. The urgency of the requirement precluded awaiting revision of Military Specification MIL-N-22918."

In view of the facts set forth above, we find no basis for questioning the Department of the Navy's action in providing in the specifications here involved that the welding machines be of the silicon diode rectifier type, instead of permitting bidders the option of offering either silicon diode or selenium rectified welders, particularly since it appears that steps are being taken by the cognizant technical codes in the Bureau of Ships and by MIL to revise the Military specifications on welding machines in the manner set out, as contemplated by paragraph 1-1202 of the Armed Services Procurement Regulation. Accordingly, your protest must be denied.

The IFB 600-670-65 form enclosed with your letter is returned.

Very truly yours,

Joseph Campbell

Comptroller General
of the United States

Enclosure